

Machine Design MCQ Question Answer

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Question: 1. In composite or reverse laid ropes

- Option A. Direction of twist of wires in strands is opposite to the direction of twist of strands
- Option B. Direction of twist of wires and strands are same
- Option C. Wires in two adjacent strands are twisted in opposite direction
- Option D. Wires are not twisted

Question: 2. Which of the following screw thread is used for power transmission in one direction only?

- Option A. Square threads
- Option B. Multiple threads
- Option C. Acme threads
- Option D. Buttress threads

Question: 3. Eulers formula for a mild steel column is not valid if the slenderness ratio is

- Option A. 90
- Option B. 60
- Option C. 120
- Option D. 100

Question: 4. Two shafts A and B are made of the same material. The diameter of shaft A is twice as that of shaft B. The power transmitted by the shaft A will be _____ of shaft B.

- Option A. Twice
- Option B. Four times
- Option C. Eight times
- Option D. Sixteen times

Question: 5. Cap screws are

- Option A. Similar to small size tap bolts except that a greater variety of shapes of heads are available
- Option B. Slotted for a screw driver and generally used with a nut
- Option C. Used to prevent relative motion between parts
- Option D. Provided with detachable caps

Question: 6. When a hole of diameter d is punched in a metal of thickness ' t ', then the force required to punch a hole is equal to (where τ_u = Ultimate shear strength of the material of the plate)

- Option A. $d \cdot t \cdot \tau_u$
- Option B. $\pi d \cdot t \cdot \tau_u$

Option C. $\pi/4 \times d^2 \cdot \tau_u$

Option D. $\pi/4 \times d^2 \times t \cdot \tau_u$

Question: 7. If P_1 and P_2 are the tight and slack side tensions in the belt, then the initial tension P_i (neglecting centrifugal tension) will be equal to

Option A. $P_1 - P_2$

Option B. $P_1 + P_2$

Option C. $2 \times (P_1 + P_2)$

Option D. $[2 \times (P_1 + P_2)] + P_c$ Where P_c is centrifugal tension

Question: 8. Aircraft body is usually fabricated by

Option A. Welding

Option B. Pre-casting

Option C. Riveting

Option D. Casting

Question: 9. Which of the following statement is correct?

Option A. The cold rolled shafting is stronger than hot rolled shafting

Option B. The hot rolled shafting is stronger than cold rolled shafting

Option C. The cold rolled and hot rolled shaftings are equally strong

Option D. The shafts are not made by rolling process

Question: 10. In a butt welded joint, the size of weld is _____ the throat of weld.

Option A. 0.5 times

Option B. Equal to

Option C. 2 times

Option D. Double

Question: 11. The temperature at which the new grains are formed in the metal is known as

Option A. Lower critical temperature

Option B. Upper critical temperature

Option C. Recrystallisation temperature

Option D. None of these

Question: 12. Belt slip may occur due to

Option A. Heavy load

Option B. Loose belt

Option C. Driving pulley too small

Option D. All of the above

Question: 13. A steel containing 0.8% carbon is known as

Option A. Eutectoid steel

- Option B. Hypereutectoid steel
- Option C. Hypo-eutectoid steel
- Option D. None of these

Question: 14. The dedendum is the radial distance from the

- Option A. Pitch circle to the top of a tooth
- Option B. Pitch circle to the bottom of a tooth
- Option C. Top of a tooth to the bottom of a tooth
- Option D. Addendum circle to the clearance circle

Question: 15. Eye bolts are used for

- Option A. Foundation purposes
- Option B. Absorbing shock and vibrations
- Option C. Transmission of power
- Option D. Lifting and transportation of machines and cubicles

Question: 16. The deflection of a cantilever beam under load W is 8. If its width is halved, then the deflection under load W will be

- Option A. $2/8$
- Option B. $8/2$
- Option C. $4/8$
- Option D. $8/4$

Question: 17. In a multiple V-belt drive, when a single belt is damaged, it is preferable to change the complete set in order to

- Option A. Reduce vibration
- Option B. Reduce slip
- Option C. Ensure uniform loading
- Option D. Ensure proper alignment

Question: 18. In a transverse fillet welded joint, the size of weld is _____ the throat of weld.

- Option A. 0.5 times
- Option B. Equal to
- Option C. 2 times
- Option D. Double

Question: 19. Which of the following screw thread is adopted for power transmission in either direction?

- Option A. Acme threads
- Option B. Square threads
- Option C. Buttress threads
- Option D. Multiple threads

Question: 20. The connecting rod bolts are tightened up with initial tension greater than the external load so that

Option A. Joint may not open up

Option B. Bolts are weakest elements

Option C. The resultant load on the bolt would not be affected by the external cyclic load

Option D. Bolts will not loosen during service

Question: 21. The objective of crowning of the flat pulleys of belt drive is to

Option A. Prevent the belt from running off the pulley

Option B. Increase the power transmission capacity

Option C. Increase the belt velocity

Option D. Prevent the belt joint from damaging the belt surface

Question: 22. The creep in the belt is due to

Option A. Effect of temperature on belt

Option B. Material of belt

Option C. Unequal extensions in the belt due to tight and slack side tensions

Option D. Stresses beyond elastic limit of belt material

Question: 23. Two shafts of the same length and material are joined in series. If the ratio of their diameters is 2, then the ratio of their angles of twist will be

Option A. 2

Option B. 4

Option C. 8

Option D. 16

Question: 24. The power transmitted by belt drive depends upon

Option A. Belt velocity

Option B. Initial belt tension

Option C. Arc of contact

Option D. All of the above

Question: 25. For high speed engines, the cam follower should move with

Option A. Uniform velocity

Option B. Simple harmonic motion

Option C. Uniform acceleration and retardation

Option D. Cycloidal motion

Question: 26. In the assembly of pulley, key and shaft

Option A. Pulley is made the weakest

Option B. Key is made the weakest

Option C. Key is made the strongest

Option D. All the three are designed for equal strength

Question: 27. Transverse fillet welded joints are designed for

Option A. Tensile strength

Option B. Compressive strength

Option C. Shear strength

Option D. Bending strength

Question: 28. Factor of safety for fatigue loading is the ratio of

Option A. Elastic limit to the working stress

Option B. Elastic limit to the yield point

Option C. Endurance limit to the working stress

Option D. Young's modulus to the ultimate tensile strength

Question: 29. Tearing resistance required to tear off the plate per pitch length is (where p = Pitch of rivets, d = Dia. of rivet hole, and σ_t = Permissible tensile stress for plate material)

Option A. $p.d.\sigma_t$

Option B. $p.t.\sigma_t$

Option C. $(p - d) \sigma_t$

Option D. $(p - d) t.\sigma_t$

Question: 30. While designing a screw in a screw jack against buckling failure, the end conditions for the screw are taken as

Option A. Both the ends fixed

Option B. Both the ends hinged

Option C. One end fixed and the other end hinged

Option D. One end fixed and the other end free

Answer Sheet

1	C	
2	D	
3	B	
4	C	
5	A	
6	B	
7	C	
8	C	
9	A	
10	B	
11	C	
12	D	
13	A	
14	B	
15	D	
16	C	
17	C	
18	C	
19	B	
20	C	
21	A	
22	C	
23	D	
24	D	
25	D	
26	B	
27	A	
28	C	
29	D	
30	D	